

Appl. No. 09/856,781  
Amdt. dated May 20, 2004  
Reply to Final office action of January 6, 2004

### **REMARKS**

This is in response to the Final Office Action dated January 6, 2004. Applicant is submitting this response as a continuing prosecution response, in order to allow re-examination of the amended claims submitted herewith. Applicant would like to thank the Examiner for the courtesies extended to the attorney for applicant during the recent telephonic interview in this case.

In the Final Office Action, the Examiner rejected claims 1-6, 8-15, 17-23, 25-32, 34 and 44 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,585,115 to Heikkila et al. Furthermore claimed 7, 16, 24 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,585,155 to Heikkila et al. in view of U.S. Patent No. 6,344,268 to Stuckey et al.

Applicant acknowledges the rejection of the Examiner and respectfully traverses. In this response, applicant has amended independent claims 1, 18 and 44 in order to place the case in condition for allowance.

In the Office Action, the Examiner states that the prior art does not require anything external to it to provide reinforcement. However, the Examiner will note that Heikkila '155 comprises a thermalplastic plastics core with an exterior reinforcing layer, as recited at Column 2, lines 35 -38. According to Heikkila, the core can comprise fiber reinforced thermalplastic plastics material. However, Heikkila makes it very clear that the finished structural member comprises the core plus an exterior reinforcing layer even if the core is itself fiber reinforced. The exterior reinforcing layer is provided by pultrusion using continuous glass filament. See Column 2, lines 35 -49. This is the traditional way to achieve enhanced strength in plastic boards.

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Applicants know of no commercially available plastic boards which have been manufactured in any way other than by using pultruded glass fiber resin, other than their own which is already commercially successful.

In contrast to Heikkila and others, applicants have achieved what has been long sought after. That is a relatively low cost plastics board having high strength. In the present invention, the reinforced core itself is all that is required to provide the necessary strength. Previously the reinforcement characteristics provided by non-continuous glass fibers were limited by the manner in which the reinforcing glass fibers were broken down by heat and pressure in the molten thermoplastic plastics material in the extrusion feed screw during processing prior to extrusion. However, boards employing the present invention are manufactured using a machine which minimizes the dwell time of the fibers within the molten material, such as that described in the paragraph between lines 1 and 17 on page 9 of the originally filed specification, resulting in boards in which the reinforcing fibers are not broken down to any great extent. Thus in the present invention, the strength of the structural element is provided solely by chopped glass fibers without relying upon a continuous filament glass fiber layer.

While it is clearly desirable to provide a cheaper, simpler method of making a strong plastics board, hitherto this has not been achieved. If a skilled person were attempting to provide a fiber reinforced thermoplastic plastics board having increased strength, as Examiner has suggested, Heikkila teaches that despite fiber reinforcement of the core an exterior reinforcing layer would still be required in order to achieve the desired strength. This is an expensive and relatively complex

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method in which two different materials and two different processes are required. In contrast, the present invention provides a much simpler, cheaper way of producing a strong plastics board, using one material to produce the board in a single process.

Therefore, in order to distinguish the present invention more clearly from the cited prior art, the independent claim 1 has been amended to recite that the load bearing structural element includes a body extruded from a thermoplastic plastics material which is compounded with chopped glass fibres so that the element has a flexural modulus of 4000 MPa or above, with the body having no exterior reinforcement layer. Similar amendments have been made to claims 18 and 44. Also claim 44 claims the use of the chopped glass fibers throughout the entire body of the element, which differentiates it even further from Heikkila et al, where the fibers are used only in the exterior layer.

The Examiner will note that at column 5, lines 33-38, Heikkila et al includes "glass fibers" as fiber-reinforcing materials. However, it should be made clear that there are two important differences between this "glass fiber" and the present invention. First, the fiber-reinforcing materials referred to in Heikkila et al refer to the materials used in the "Exterior Layer" of the structural member, an exterior layer not found in the present invention. See Column 4, lines 11 -12 of Heikkila et al, where this type of material is being discussed under the heading "Exterior Layer Comprising a Fiber-Reinforced Thermoset." Second, the "glass fibers" of Heikkila et al are "used in the form of a single filament, a multi-filament thread, a yarn, a roving, non-woven fabric or a woven fabric material." Column 5, lines 38-40. However, it is noteworthy that none of these materials would be applied in the form of the claimed invention which utilizes chopped glass fibers.

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Therefore, applicants would assert that clearly, the combination as taught by the present invention is not obvious over the prior art cited. There is no remote suggestion in Heikkila et al that the structural member as disclosed can perform as expected without the reinforcement layer as described in the patent.

Furthermore, "[T]hat all elements of an invention may have been old (the normal situation), or some old and some new, or all new, is however, simply irrelevant. Virtually all inventions are combinations and virtually all are combinations of old elements. A court must consider what the prior art as a whole would have suggested to one skilled in the art." *Environmental Designs, Ltd. v. Union Oil Co.*, 218 USPQ 865, 870 (CAFC 1983). "Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under [35 U.S.C.] Section 103, teachings of references can be combined only if there is some suggestion or incentive to do so." *ACS Hospital Systems v. Montefiore Hospital*, 221 USPQ 929, 933 (CAFC 1984) and cases cited therein (emphasis in original). Applicant has carefully examined the Heikkila patent cited, and can find neither a teaching nor suggestion why it would be obvious to undertake the combination as claimed in the present invention.

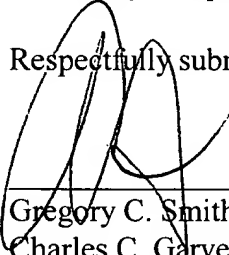
Further, in view of the fact that the independent claims 1, 18 and 44 have been amended to claim over the prior art, dependent claims 7, 16, 24, and 33, all rejected over Heikkila et al in combination with Stuckey et al, are likewise patentable, being dependent off of now allowable independent claims.

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In view of the amendments and arguments of counsel, applicant requests re-examination of the application, and a notice of allowance.

Please charge any fees due or credit any overpayment to Deposit Account No. 50-0694.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on May 20, 2004.



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